From the Editor's Desk...

There are changes in two important club functions. The cost of mailing the newsletter and the meeting place for August and September.

No one needs to tell you about escalating prices. The JACG is not exempt from rising costs, especially when it comes to the printing and distribution of the newsletter. We spend between $150 and $200 every month to mail newsletters which were not picked up at the meeting. Beginning with the July issue we will bulk mail third class. Depending on where you live you may not notice any difference in the delivery time but it is likely that you will.

It costs about 50 cents extra to go first class with each mailing. The club, with a motion and show of hands, has decided to impose a surcharge of $6.00 per year for any member wanting first class delivery. Send your check to Membership Chairman Joe Kennedy (address on back cover) to insure your current delivery dates.

Bell Laboratories must close the auditorium for the months of August and September to allow for contractor work. Those monthly meetings will be held in the auditorium of Mountain Lakes High School. This will be especially appropriate for the September Atari Safari since each group will meet in a separate classroom. Mountain Lakes is located in Morris County, about a mile northwest of the intersection of Routes 80 and 287. Details and a map will be in the July issue.

Frank Pazel
Editor-in-Chief, JACG Newsletter

In This Issue

MARK YOUR CALENDARS!!
JACG Meeting Schedule
======================
July 12, 1986
August 9, 1986*
September 13, 1986*

*These meetings will be at
Mtn Lakes High School

NOTE JUL. & AUG. LOCATION CHANGE

THE VIEW
FROM WHITE HOUSE.
The Presidents' message.
by Bill Martin

HOT LINE TO THE PRESIDENT. - (201) 534-6349

Well, I guess it's official. The July meeting will be held at Bell Laboratories and the August and the September meetings at Frank Pazel's school. Instructions on how to get there are forthcoming so make sure that you mark your calendars. It should prove to be an interesting adventure as Frank's school uses the Atari computers exclusively. Jerry Frese has mentioned to me that the September meeting will be an Atari Safari to be remembered because we will have the facilities to make presentations without interference from the other presentations being made. More about the Safari later.

Jerry also mentioned that he won't be able to attend the July and August meetings because he is having a baby. Isn't science grand? ...and he's not even showing yet! In all seriousness, best of luck and our prayers go out for you and your wife.

In Jerry's absence, Joe Kennedy, (Mister reliable) has volunteered to function as Program Director. While Joe is doing that, he will need some help with membership, especially before and after the meetings. Please call him and offer your assistance. One of Joe's other duties is to write a brief of the meetings. Dave Noyes will cover for him on this since he, (Dave), has volunteered to write up the question and answers section of the meeting. Dave will be creating a mail-in form that will be reproduced in the newsletter so that we may include the out of town members in our monthly festivities. Thanks to Bob Mulhearn, who jumped into the fray at the last meeting by hosting the question and answer period. I've been trying to get out of that job for months now. It's not me!

Thanks to Dave Noyes, Joe Kennedy, Pete Smith and Chuck Lichtenwalner who helped to produce the Tom Pazel program that was offered in "The End User" by Art Leyenberger in the June issue of Analog magazine. Tom Pazel was able to consolidate the two programs so that we only had one disk side to reproduce. It saved about 50% of the work. Thanks Tom! So far, at this writing, we've had about 80 responses and the flow is showing no sign of letting up. I've been handling it but if it starts to pile up on me again I'll be back to ask your help.

Our search for a lawyer to foster our thrust toward incorporation continues. In the next few days I'll be contacting the executive committee for additional names to incorporate under. We must submit no less than three names for the search or else lose some time and additional money. More later. Meanwhile, if you are a lawyer and would care to volunteer, we would appreciate it. If we have not had a volunteer by the June meeting, we will have to go out and hire one because the matter is too important to let go.

Special thanks to Ken Mc Cullough, Dick Lamb, and Dennis Hoskins who did us a big favor, in coming up with two sets of the disk data base on such short notice. I do appreciate it!

My check and personal thanks has gone out to Bill Brandt, Chairman of the Robotics Sig for a copy of his magazine article data base. Just the thought of having to enter 16 disks worth of data makes me cringe and think of former President Art Leyenberger's now famous expletive, awesome!

Digital Devices in Atlanta, the final word. A call from Mike Allen of the same informed me that the interface upgrade was complete and if I would mail my loaner back to them with my check for $6.00, they would forward my new one. The next day, Friday I put it in the mail and imagine my surprise when my new unit arrived on Saturday, the following morning. That's what I call response time!!! A glance at the postmark showed that the ultimate postal miracle had not occurred. They had mailed the unit out to me before they had called. Gentlemen, I'm impressed!

Lastly, it has been brought to my attention by our Secretary, Bob Mulhearn that August is a BIG month for renewal's. Do us a big favor and send it in now so that a huge work load isn't dumped on Joe Kennedy's shoulders at the last minute. It will also help to tell us that we won't have a big drop out rate at renewal time. See you next month.

MEETING NOTICE!

THE AUG. & SEP. MEETINGS WILL BE HELD AT MTN LAKES H.S.

DETAILS NEXT MONTH

MAY MEETING HIGHLIGHTS

Reported by
Joseph S. Kennedy

Bob "Hardware" Mulhearn conducted the question and answer period before the meeting opened. President Bill Martin opened the meeting. It was announced that the June and July meetings would be held at the Bell Labs Auditorium but the August and September meetings would be held at Mountain Lakes High School where Frank Pazel runs the computer lab. The Atari Safari will be held at Mountain Lakes in September. The computer lab will be an excellent setting for the Safari. In the Atari Newsletter it was announced that some copies of the Atariwriter+ dictionary got out with garbage between bloomer and bubbles. If you have one just write to:

Atari Customer Relations
1196 Boregas Ave.
Sunnyvale, CA 94086
Attn. AW+ Dictionary

They will replace it. Atari also has a BBS at 408-745-5308 with a variety of SIGs on it. Give it a call. Batteries, Incorporated is willing to give us Registered User Group status if we can supply Paperclip and Homepak "experts" for them. With registered status they would supply speakers and assistance to our meetings. If you use either of these or other BI programs give Bill Martin a call.

The newsletter will be mailed third class in the future unless a $6.00 additional mailing fee is paid for first class. International membership fees will be $30.00 with the exclusion of Mexico and Canada. The price for a newsletter ad will be $48.00 per page. This just covers the costs for printing for the club.

Frank and Tom Pazel presented the latest JACS Print Shop picture disk. Frank also announced that the deadline for the newsletter is the 20th of the month. Due to the mention of Tom Pazel's Print Shop utility in Art Leyenberger's ANALOG column we have received over fifty orders for the disk. Thanks for a job well done Tom!

Jerry Frese demoed Conflict in Vietnam which was donated for the door prize by Gemini. Thanks Gemini! Jerry began his demo with a review of war games. He was very favorable in his assessment of Conflict in Vietnam.

Joe Kennedy demoed Business from volume #016 and Passion from volume #061 of the Disk Library. Passion sings about the feelings for Atari machines (Wouldn't want the folks in Sunnyvale to get too heady!)

Scott Brause showed us the P:R: Connection a replacement for the 850 interface at a significantly lower price. Scott also demoed Sparta DOS for us. He was very enthusiastic about the DOS.

Paul Tupaczewski demoed his program

Boomsquad which was published in the June issue of Antic. Congratulations Paul!!

Our ST librarian Jim Budelman demoed several pictures from the St library and a program to show the pictures.

Eli Thompson demoed his program, Chipmunk, which he has written to back up software without the necessity to modify a disk drive. Eli will be selling the program for $34.95

Bob Mulhearn announced that volumes of exchange newsletters would be available at each meeting to be checked out. They should be returned by the next meeting or the offending party's newsletter will be with held until it is.

```
**************
GIVE A BIT!!
**************
```

Pigs Like Computers Too!

In Fairfield, Iowa there is something unusual going on at Doug Johnson's pig farm. In order to make the pigs feel relaxed and loved Fairfield Software is trying a one time experiment. A computer voice saying in a Swedish accent: "I think I'd swoon if you allowed me to kiss your limpid umbrella".

If a happy hog is a healthy hog then, in theory, he or she should gain weight faster. The software company brought its "Babble 123" program right to the pigpen and then turned the gentle, male voice loose to coo sweet nonsense at the pigs.

"My mind and heart are always crowded by visions of your coy elbows", "I like to fondle your sleeveless fur coat" says the computer. Melda Palmer, a sociologist, who is on a panel of "hog specialists" said she is absolutely amazed at the results. Pigs do not like large numbers of people intruding on their territory — they tend to give out high-pitched, squealing sounds.

These pigs reacted by scampering around their pens, and when reporters shoed up the pigs playfully chewed on their coats and the camera tripods. Mrs. Palmer therfore admits that the computer sound may have a calming effect on the the porkers.

A feed dealer in Fairfield said that he thinks the pigs "were definitely going through an emotional episode of some type."

Johnson, who has a 1200 acre farm, was impressed with the calming influence of the voice. "I think it's a success", he said. "The pigs have been very congenial and cooperative with the press. A few have even given personal interviews."

But Johnson was not impressed enough to buy the $4000 computer. Maybe this is a market for the ailing Commodore computer. I can see it now — a Commodore in every pig pen and the voice of S.A.M. with a Swedish accent singing "O' Pig Of Mine."

Atariwriter+ Printer Driver For SG10 Printer

by Bill Zinn

Those of us with the Star SG10 printer have had some problems with the printer driver editor built into the otherwise excellent ATW+.

Thanks to John Skruch, Manager of XE Software at Atari, here are the codes for a working SG10 driver. It was developed by Eric Ginner, also of Atari. John assures me that it produces two column text if sufficient memory remains for the computer to format the text just before printing. The only problem: expanded condensed text will not print in column one.

Because Mr. Ginner's driver does not permit mixing NLQ and proportional fonts with other fonts in the same file, I have included an alternate set of codes for setting up the fonts in the driver editor. I have not had time to test either set on the 130XE to verify that they permit two column printing.

NOTE: SELECT and UP or DOWN ARROWs do not work for superscripts and subscripts. Control G codes are required. Also, when changing fonts within the file a <CTRL> G 1 should always be used to turn off super/subscripts, italics, double strike, (and proportional if using my alternate codes) before selecting another font.

Codes to Enter for Editor Prompts:

Prompt	Code
Initialize Every Line	blank
Line feed & CR	155
Underline off	27 45 0
Underline on	27 45 1
Backspace	8
Elongate off	27 87 0
Elongate on	27 87 1
Bold off	27 70
Bold on	27 69
Up 1/2 line	blank
Down 1/2 line	blank
Down 1/2 line & CR	blank
Return w/o LF	155
Font #1 Pica	27 84 27 53 27 72 27 66 1
Font #2 Condensed	27 66 3
Font #3 Proportional	27 112 1
Font #4 Superscript	27 83 0
Font #5 Subscript	27 83 1
Font #6 Elite	27 66 2
Font #7 Italics	27 52
Font #8 Double strike	27 71
Font #9 NLQ	27 66 4

The following alternate font codes turn of proportional with <CTRL> G1 and turn off NLQ whenever any of the other fonts are selected.

Font	Name	Code
Font #1	Pica	27 84 27 53 27 72 27 112 0 18
Font #2	Condensed	27 66 5 27 66 3
Font #3	Proportional	27 66 5 27 112 1
Font #4	Superscript	27 66 5 27 83 0
Font #5	Subscript	27 66 5 27 83 1
Font #6	Elite	27 66 5 27 66 2
Font #7	Italics	27 66 5 27 52
Font #8	Double strike	27 66 5 27 71
Font #9	NLQ	27 66 4

NOISE from NOYES
Telecomputing, or, what's the right number?

by D.Noyes - JACG

Ever since I bought my first modem (MPP 1000E) a 300 baud direct-connect modem, I have been very generous to both AT&T Communications and New Jersey Bell. Mind you, not for some altruistic motive like ensuring that the DIVESTITURE did not negatively affect either company, but from a desire to see what new vistas (specifically, downloadable files) computing by modem might be afforded me by the many services that are available. I began by getting subscriptions to COMPUSERVE, NEWSNET, HUTTONLINE, DOW JONES NEWS SERVICE, DELPHI, ANALOG TCS, and most recently, GENIE. To be honest, I never exceeded my start-up allowances with NEWSNET, HUTTONLINE and DOW JONES. My need for news was well satisfied with TV and newspapers; and my meager portfolio couldn't support a newspaper subscription, much less that of an on-line service.

Of all the services, only COMPUSERVE was a local call for me. As I have mentioned, I mainly use the service to D/L Public Domain software. The only problem with the Data Libraries in the ATARI SIG was that it often took longer to see what was there than it did to D/L the software; I encountered the same problem with DELPHI - It is a time-consuming process to go through the Data Libraries to determine their contents. Not so with ANALOG's TCS. A file (DIRFILE.TXT) contains the titles of all files in the D/L section (of course a drawback is the long-distance call to Massachusetts, however, the TCS is soon to move to DELPHI, replacing the long-distance charges with DELPHI connect time). Genie, my latest experiment, is set up similar to both DELPHI and COMPUSERVE, that is, considerable time must be utilized in browsing through the Data Libraries.

For speed and ease of use, the ANALOG TCS gets my vote, but with the long distance charges, it may be a tad on the expensive side. On the other hand, COMPUSERVE, which is a local call for me, charges much more for connect time. However, since I have laid-in a supply of COMPUSERVE starter kits (5 hours of connect time at 300 baud or almost 3 hours at 1200 baud) at the bargain price of $9.95; COMPUSERVE is unquestionably the way I go (at least as long as the starter kits last!). Oh yes, I got the kits at GEMINI, and they still have some.

Next month in NOISE from NOYES

The answer to your dreams or a nightmare? A review of the AVATEX 300/1200 baud modem.

The Australian Atari Gazette (Melbourne)

Modifications To The JACG Print Shop Utility For the SG-10/15 Printer

by Werner Heck - JACG

Tom Pazel wrote the JACG Print Shop Utility for the Epson and Prowriter printers. If you want to print the graphics symbols using his program, neither the Epson or the Prowriter options will work with the SG-10/15 printer. To get the program to work with the SG printer, 10 lines of code have to be changed: 6 lines in the main program and 4 lines in the menu program.

Either the Epson main prorgam (called PSGL.EPS on the disk) or the Prowriter main program (called PSGL.PRO on the disk) can be changed. I chose to change the Epson main program (PSGL.EPS); the following are the 6 lines as they should be for the SG-10/15:

```
600 PUT #1,27:PUT #1,66:PUT #1,2:REM ELITE

690 PUT #1,27:PUT #1,66:PUT #1,1:REM PICA

1080 PUT #1,27:PUT #1,65:PUT #1,8:REM 24/216
(16/144) INCH LINE SPACING

1500 PUT #1,13

1570 PUT #1,13

1590 FOR I=1 TO 2:PUT #1,13:NEXT I
```

After these changes are made to PSGL.EPS, you can save the program under a different filename. For example, if you save the revised program as PSGL.STR, then you must change the following 4 lines in the menu program (file MENU):

```
180 POSITION 1,16:? #6;" SG-10/15 "

230 IF EPSON THEN RUN "D:PSGL.STR"

270 EPSON=1:POSITION 1,14:? #6;">>>     EPSON
<<<":POSITION 1,16:? #6;"  SG-10/15  "

290    EPSON=0:POSITION    1,16:?    #6;">>>
SG-10/15  <<<":POSITION  1,14:? #6;"    EPSON
```

Personal Expert Systems

by Donald Forbes -- JACG

(Phone rings.)

BOB

Don? This is Bob. Do you know anything about expert systems?

DON

I know everything about them. I am the expert. In fact, this minute I am on the Atari, typing up the Guess the Animal game in BASIC from the April Antic. Then I am going to write it all up for the JACG newsletter next month. And then you can read all about it.

BOB

I need it for a term paper the day after tomorrow.

DON

I was just kidding. Come on over and I will show all I have.

BOB

I will be over in five minutes. (...Five minutes later...) Well, here I am.

DON

Sit down here at the card table and I will explain everything to you.

Artificial intelligence, and particularly expert systems, are the hottest software items today.

Artificial intelligence got its start about thirty years ago when Alan Mathison Turing adapted a popular British parlor game of the time. You put a computer in one room and a man in another, and the interrogator who communicates with each must determine which one is the computer. No machine today could fool the interrogator, but they are working on it. The real beginning was in 1956 when Claude Shannon and Marvin Minsky met at Dartmouth to see Allen Newell's 'Logic Theorist.'

Larry Atkin's ODESSA chess player for the Atari is a sophisticated artificial intelligence game that my son has been playing for the past three years.

Calculus Demon that runs on the Atari has been around the house here for several years. It is written in BASIC and does symbolic differentiation and integration, a form of artificial intelligence.

On the Wang OIS terminal on my desk there is a demo called Animal which gives you the following dialog. You think of a snake and then answer the prompts with a y for yes, or an n for no.

```
Are you thinking of an animal? y
Does it swim? n
Does is bark? n
Does it climb? n
Does is crawl? y
Does it have legs? n
Is it a SNAKE? y
Are you thinking of an animal?...
```

You can find the animal game in BASIC in the Sep 1981 issue of BYTE. The Guess the Animal Game in the April Antic is an Atari BASIC program that requires minimal memory, and builds up the database as you answer questions while you play the game.

What is exciting about all this is that, not only are expert systems being run on the big computers, but the small fry like you and me can now run our own expert systems on our home computers for little money, and in some cases for free.

AI, as it is called, is now all over the map: knowledge representation, problem solving, natural language interfaces, learning, cognitive modeling, strategy games, vision, robotics, and most importantly, expert systems.

Instead of number crunching, computers are now being used to do symbolic processing, which means that they must now handle lists of characters instead.

An expert system (also known as a knowledge system) has two parts: one is the database of knowledge, and other is the 'inference engine' which handles the logic part by interpreting statements containing IF .. THEN .. ELSE, AND, OR, NOT, IMPLIES, and so on. In some cases the same inference engine can be used with different databases to create an entirely different expert system.

MISWeek for May 5 reports that Thinking Machine Corp. of Cambridge Mass. has orders for six machines (priced at $1 to $3 million) that do parallel processing at a billion (yes, billion) instructions per second. The orders are from Yale, Perkin-Elmer, MIT and the Defense Department.

Two weeks ago at the office I had to cart an IBM PC AT downstairs to the auditorium. IBM was going to show off to a half dozen of our VPs their Expert System, complete with the 27-year-old LISP and the 14-year-old Prolog languages, as well as an automated loan authorization system. (The General Information Manual is GH20-9597.) I asked how much it cost but didn't get an answer (like J.P. Morgan's yacht, if you have to ask...). Expert systems to evaluate commercial loans are the coming thing.

Banks are also writing expert systems to issue letters of credit. (If, say, you buy 100 typewriters in Hong Kong or Bombay, a bank will pay the seller for you and handle the paperwork and red tape -- because they have clerks with 20 years of experience who know the ins and outs.)

IBM is not alone. InformationWEEK for last April 28 had a whole issue on the AI WONDERLAND and the four leaders in expert systems: Teknowledge in Palo Alto CA, Intellicorp in Mountain View CA, Carnegie Group in Pittsburgh, and Inference Corp. in Los Angeles.

Teknowledge, where a development package can cost $45,000, uses the C language and is heavily financed by General Motors, Procter & Gamble, FMC Corp., and Nynex. At Intellicorp a license costs $30,000. Carnegie is backed by Boeing, Ford Motor, Digital Equipment, Texas Instruments and the French computer services giant, and they sell a package for $50,000. Inference Corp. is backed by Control Data, Lockheed and Ford Motor, and has a $65,000 package.

There are about a dozen expert systems that have been around for several years and are well known. MIT has MACSYMA to do symbolic mathematics. SRI has PROSPECTOR which does exploratory geology, and which successfully located a $100 million molybdenum mine that none of the nine experts who built it could find. Stanford U. has MYCIN to diagnose bacteriological blood infections. Pittsburgh U. has INTERNIST for medical diagnosis.

At General Electric their expert on locomotive repair was about to retire, so they wrote a LISP (short for list processing) program to capture his knowledge, and then translated it to Forth to ship to the local installations. You will find a ten-page writeup in the Sept 83 Journal of Forth Application and Research.

The May 6 issue of Computer Decisions has a list of 22 vendor packages which allow you to do financial modeling, and several include complete expert systems, at prices from $1,000 to $160,000.

If all this sounds far out, don't despair. You may soon have an expert system right on your desk at the office, at an affordable price. PC Magazine for May 27 has a nine-page story on GURU for $3000 that will run on a PC with 2 megs of memory.

PC Magazine calls it 'a huge program integrating a solid, but complex and often bewildering expert-system shell with traditional business applications (database, spreadsheet, word processing, graphics, and communications) and a weak natural-language interface. It is a system development tool rather than an end-user program. GURU may encourage easy and casual use of expert-system techniques in an everyday business environment.'

The writer, however, adds: 'Despite its shortcomings, GURU is an exciting product. It brings a very powerful and solid, if complex, tool out of the universities and laboratories into the business environment, making expert-system development much more widely possible than in the past. The program encourages the use of a new system-development technique and will make it possible to computerize many tasks that have always appeared too complex to computerize before.'

One possible application of GURU would be to build an in-house travel advisor which would let you choose the most appropriate flight between NY and LA for the CEO or the newest salesman.

The bright side of the coin is that you don't have to be made of money to play in this game.

If you have access to a machine that will run the public domain version of Forth-83 you can experiment with the MVP-FORTH Expert System Toolkit by Jack Park. The kit has some 70 screens which allow you to build the inference engine (which analyzes the logic) and the knowledge base.

If you have access to an IBM PC clone, you can buy some 500 diskettes in the public domain for about $6 apiece including LISP and Prolog and expert systems. PC-SIG at 1030 E. Duane Suite D, Sunnyvale CA 94086 has disk 268 Expert System, disk 398 Expert System, disk 417 Prolog, and you can get MVP Forth on disks 31 and 32. Borland is also advertising a complete Prolog package for $99.

The animal game is on disk 398 in the ESIE system (Expert System Inference Engine) and goes like this, after you load the file ANIMAL, think of a snake, and type GO:

```
Does the animal have a backbone? y
Is the animal warm blooded? n
Is your animal always in water? n
Is it covered with scaled skin? y
Does it have a rounded shell? n
Does your animal have limbs? n
I think your animal is a SNAKE
```

Here is the start of an expert system that can be written in Prolog (short for Programming in Logic):

```
(Car won't start)
    ¦
    ¦
[Engine cranks](No)-->[Batt volts](no)-\
     (Yes)                        v
       ¦                    (Check battery)
       ¦
[Smell gas](yes)-->(Try full thr. cranking)
       ¦                   (failure)
/-------/                      ¦
       (and so on)
```

The April issue of Dr. Dobb's Journal of Software Tools is the annual AI issue, which has the game of LIFE written by Jack Park in Expert-2 in Forth, and articles on programming in LISP and Prolog.

If you have access to an IBM PC clone, as I do, and have followed the Forth articles in the newsletter, then you can have a mountain of fun for next to nothing with a $19 256-page book published in 1986 by Tab Books that I picked up at B. Dalton's on 'Designing and Programming Personal Expert Systems' by writer Carl Townsend (who wrote the first third) and consultant Dennis Feucht (who wrote the rest).

What caught my attention is that they use Forth to emulate the primary list manipulation functions found in LISP and then show how to implement a simple Prolog using Forth. The book is a complete course in expert systems, and I can think of no better way to position yourself at the leading edge of the current technology.

Well, Bob, I hope this gives you enough material for your term paper. If you want a tutorial on expert systems, you will have to wait until I can digest all this stuff and then I will write it up for the newsletter and give you a copy.
                                    BOB
Thanks for the help. I will bring back your material tomorrow. Then I have to rush off to pick up 120 pounds of beef ribs for our fraternity barbecue...

KAPREKAR'S PROBLEM

by Kenneth J. Pietrucha - JACG

Every so often I find a number curiosity which I feel deserves some investigation. Like Ulam's Problem, Kaprekar's Problem is named after its discoverer, D.R.Kaprekar, an Indian mathematician, who in the year 1940 B.C. (before computers), discovered some interesting numbers.

The best way to explain his problem is by example. First take any three digit number and arrange the digits in order from smallest to largest. Take this number and reverse the order of the digits to give us the the largest possible number which can be formed using these digits. Subtract the smaller number from the larger number to get a third number. With the third number repeat the process just described. If the procedure is repeated, it will eventually yield the number 495, which will repeat itself over and over again.

Here is what happens when you perform these operations on the number 529.

$$952 - 259 = 693$$
$$963 - 369 = 594$$
$$954 - 459 = 495$$
$$954 - 459 = 495 \text{ etc.}$$

The same thing happens with four digit numbers, where the number 6174 repeats.

I have analyzed numbers up to ten digits using the program listed in this article and have not found any other repeating numbers. It seems so far, only three and four digit numbers repeat with 495 and 6174 respectively.

Numbers with other than three or four digits show patterns of repeating in groups. When I analyzed five digit numbers, I found the numbers repeating in a block consisiting of 63954, 61974, 82962, 75933. Other numbers of different lengths gave similar results. Sometimes there was more than one group of repeating blocks. I am not going to spoil your fun by telling you any more. Try it yourself and see what you can find.

```
1    REM KAPREKAR-PROBLEM
2    REM KENNETH J. PIETRUCHA
3    REM J.A.C.G.**4/23/86
5    DIM Z$(15),Y$(15),
W$(15),R$(15),E$(15)
6    DIM A(15)
10   GRAPHICS 0
20   PRINT "ENTER STARTING
     NUMBER ":INPUT Z$
25   N=LEN(Z$)
30   FOR X=1 TO N
35   A(X)=VAL (Z$(X,X))
45   NEXT X
50   X=0:L=0
55   X=X+1
60   A(X)>A(X+1) THEN LET
     Z=A(X):A(X)=A(X+1):
     A(X+1)=Z
65   IF X=(N-1) THEN LET
     X=0
```

```
70   L=L+1:IF L=(N*N) THEN
     GOTO 100
75   GOTO 55
100  FOR X=1 TO N
105  S$=STR$(A(X))
110  Y$(LEN(Y$)+1)=S$
115  NEXT X
120  K=VAL(Y$)
121  Y$=""
125  FOR X=N TO 1 STEP -1
130  R$=STR$(A(X))
135  W$(LEN(W$)+1)=R$
140  NEXT X
145  P=VAL(W$)
146  W$=""
150  IF P>K THEN LET D=P-K:
     PRINT P;" - ";K;
     " = ";D:GOTO 175
155  D=K-P:PRINT K;" - ";
     P;" = ";D
175  E$=STR$(D):
     EL=LEN(E$):IF EL<>N
     THEN D=D*10
200  Z$=STR$(D)
205  IF RPT=D THEN PRINT
     "REPEATING":PRINT :
     PRINT :GOTO 20
207  RPT=D
210  GOTO 25
```

Analysis of the program is as follows. After the number is entered as a string in line 20, its length is measured. The string is turned into idividual digits and each digit is assigned an A(X) variable.

Next, the individual digits are arranged in order from the smallest to the largest by a "bubble" sort in line 60. This is an interesting and important part of the program, so bear with me for a moment. If X=1 then we will be looking to see if the first number A(X) is greater than the second number A(X+1). If it is larger than the first, the number is assigned the variable Z as a temporary storage area while the second number A(X+1) moves into the space that was formally the first number [A(X)=A(X+1)]. Now we can move the original number, which was stored in Z, into the number two position [A(X+1)=Z] and the two numbers change places.

The program now looks at the next two numbers (second and third), and does the same type of exchange. When it reaches the end of the line, it starts over. Meanwhile, line 70 is counting each trip through the loop L and when it goes through N squared times (worst case), then you know everything is in numerical order. Pretty neat, huh?

Lines 100 to 115 take the individual numbers and turn them back into string variables so they can be put back together or concatenated in line 110. We get back one number in line 120 with all the digits in ascending order.

Lines 125 to 145 do the same thing as lines 100 to 115, except that it does it backwards so that we wind up with a number which is the reverse of the number we had previously.

The rest is easy. In lines 150 and 155 the program checks to see which is the larger number. It then subtracts the

smaller from the larger and prints out the two numbers and their difference.

The new number we get when we subtract the two is converted back into a string variable in line 200. It will eventually be fed back to line 25, where it repeats the procedure.

After I wrote the program, I had only one major problem. When using numbers with two digits, the program is suppose to enter a loop where the number 9, really 09 as a string, should reverse itself and become 90. This didn't happen and 9 became 9 and when it was subtracted it became zero. It should have been 90 - 9 = 81. To correct this, I added line 175. It knows, from previous measurements in the program in line 25, that we are working with a number with so many digits; in this case it has two digits. The number of digits in our answer is compared to N. If it is less than N, the number is multiplied by 10 or in effect a zero is added at the end of it. This procedure is only needed for two digit numbers.

I added lines 205 and 207 to trigger when it recognizes that the numbers start to repeat. It doesn't recognize when blocks of number start to repeat, that's for homework.

PEEKS & POKES

by Kenneth J. Pietrucha - JACG

Making more than one copy of a disk by using the copy function from DOS can be a real bore. I can't do anything about the number of times you have to swap disks back and forth, but I can help you speed things up a little by poking off the "read after write verify."

First, I assume you know your disk drive and that you are using good quality disks. In all the times I have used DOS to make a back-up copy, I can not remember one time when I had problems. With this in mind, I take my chances and turn-off the verify by poking a POKE 1913,80 from BASIC before going to DOS. To get back to the original default settings, do a POKE 1913,87.

Remember, because some of us do things like this, doesn't make it right. Please be careful, you could lose some data.

◆ ◆ ◆ ◆ ◆

THE DISK LIBRARY

NEEDS YOUR CONTRIBUTION

Share Your Original Program With Us

EASTER EGG

Tips From
ACUSOFT (NC)

MASK OF THE SUN: LOST? To get you going try this: Get Map. Look map. Get jeep. You will be traveling north automatically. Continue west. Get All. Go out jeep. Go hut and give food. The old woman will give you a flute and tell you something...remember it. Then go out and get in jeep. Go west, then northwest. You will be at the statue of a cat whose head has been removed. Drop all but pills. Get out of jeep and look statue. You will see the secret record XOTZIL. Remember it. Get head. Drop head on statue. The statue turns into a jaguar and departs.

F15 STRIKE EAGLE: Always running out of gas on those long missions? Try using the "A" afterburners for energy.

STRIP POKER: Change file OP1.1 to short. Change OP1.5 to OP1.1. The first girl will appear nude.

KORONIS RIFT: There are 20 levels of play. Get the guardian base and the planet is yours. Patience is the answer for this one.

GUITARWORKS

1040ST™
Personal Computer System

The Only One Megabyte Computer for under ~~$1000~~ $800
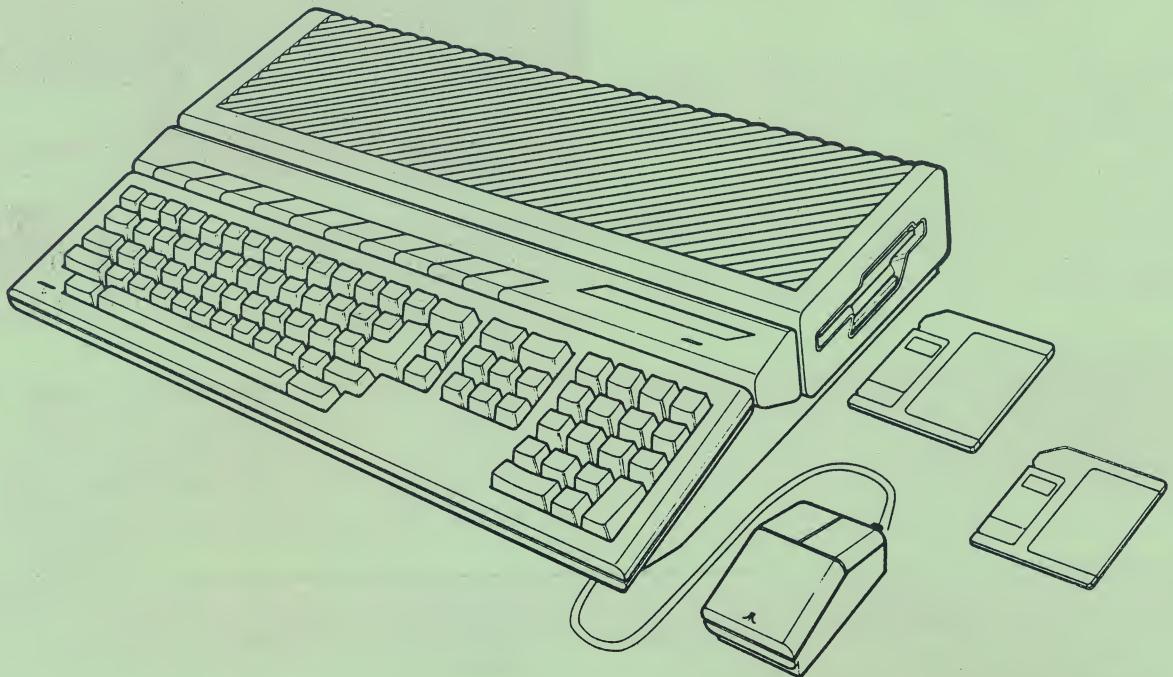
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- 512 colors.
- Selectable graphic resolution:
  640 x 400 monochrome.
  640 x 200 x 4 colors.
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- Midi In/Out ports.
- Industry standard parallel interface port.
- RS232C serial modem port.
- Floppy disk port (including controller) for 2nd disk drive.
- Hard disk port.
- ROM cartridge port.
- Mouse and joystick ports.

TECHNICAL DATA:
- MC68000 microprocessor; 32-bit internal, 16-bit external architecture.
- Clock speed 8 MHz.

REQUIREMENTS:
ATARI RGB or Monochrome Monitor.

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PDG

by Joseph S. Kennedy

When it rains, it pours! Not only in the middle of this beautiful weather we've been having but also with magazine indexes. First Bill Brandt makes available his excellent printed copy of his 16 disk Synfile database. (By the way once you get your hands on it this index will quickly be used as often, if not more, than your copy of Poole and company). Then at the same meeting volumes #086 and 087 become available in the Disk Library.

What, you ask, is on these disks? Well they contain magazine files. To access these files you first boot up side two of Volume #086 with BASIC and RUN"D:SFLIST.BAS". You are then asked to put the source disk in drive 1 and press START. The source disk is either side 1 of volume #086 or 087. You will then see a screen listing the categories of articles on the source disk. To select a topic you simply enter the number of the subject. The program then askes you if you want the information Displayed on the screen or Printed out. Just press D or P and sit back. Before you print out the info I would suggest that you view it on the screen as some of the files are quite long and you might want to be sure you want to print out the topic.

A typical entry gives you the subtopic within the heading, a brief description of the article; whether it is a review, program (by abbreviation name of the language); the magazine; date of the issue and the page number. The following is a typical entry under the topic Math:

GRAPH, X-Y-Z. Display graphs of 3 variables. abl ALG #5-82 p14

The abbreviation abl stands for Atari basic. Others that would appear in the same spot could be:
```
    rev ... review
    ffl ... forth language programs
    apl ... Pilot programs
    tut ... tutorial
    art ... article
    aal ... assembly language
    vct ... visicalc template
    mbl ... microsoft basic
```

If anyone knows what nas is, I'd love to hear from you.

The magazine abrieviations are:
```
    ALG ... ANALOG
    ANT ... ANTIC
    CMP ... COMPUTE
    CRC ... CREATIVE COMPUTING
    ACE ... ACE NEWSLETTER
```

Should you find others let me know. A nice touch is that any fix published at a later date is added to the end of the listing. (Boy does that make life easier!) This index was compiled by the ACE group in Eugene, OR I believe. If I'm wrong please let me know so credit can be given where credit is due.

One small gripe. There is no provision for adding to the databases. But there is a small file on volume #087 that provides the header for using Atariwriter to print out these files if you would prefer that to the print outs the program gives.

But rain isn't all that is abundant in springtime. Don't forget that spring is also the time for love. And where is there more love than the Atari owner has for his machine. With that in mind one should run the program PASSION from Volume #061. (Dos "L" load for this binary file.) Then sit back and sing Passionately along with your love - Atari. See you next month.

```
**************
*     J       *
*GIVE A BIT!!*
*     C       *
*     G       *
**************
```

SOFTWARE SPECTRUM

■■■■■■■

SUPER SALE!

Computer Beauty

(Part one of three)

by Donald Forbes -- JACG

When it comes to beauty, most people are blind.

We will open your eyes, and the world will never look the same. What we say here, you will remember for the rest of your days.

With today's computer graphics you have an unparalled opportunity to create beauty -- if you know how -- and ugliness -- if you don't.

There are three parts to beauty: first form, then color, and lastly, how to combine them. There are some simple rules that you should know, and the rest is easy.

This time around we will discuss form -- and leave the other two steps for later.

Beauty has been defined by the famous Harvard mathematician George David Birkhoff (and father of Garrett Birkhoff) in the following formula (Aesthetic Measure, 1933):

$$Beauty = \frac{Maximum\ of\ Order}{Minimum\ of\ Complexity}$$

In other words, achieve an orderly end result with the least resources. In our case there are two parts to the resources that make up the formula: form and color.

We start with a line. The fundamental problem of esthetics is to divide a line in the most pleasing proportion. Here is a line:

Where would you divide it to achieve the most pleasing proportion?

There are many ways to divide a line. You could divide it in half. Is this interesting? You could divide it into one third and two thirds. Interesting? You could cut off one fourth, or other integral fractions. But are they interesting? You can try them. If you find them boring, is there a better way?

Believe it or not, the Greeks found a better way some two thousand years ago, and you will find it in their architecture and their pottery and other artifacts.

Here is the rule:

Divide the line in two parts,
so that the smaller is to the larger,
as the larger is to the whole.

Sound confusing? Here is a picture:

```
+------------+--------------------+
      A               B
```

Note that the length of A (the smaller part) has the same ratio to B (the larger) as B has to the total length C. If we were to pace off the length of A on the ground, we might find that it is about 13 feet long. Pacing off B will give us about 21 feet. What is the length of the whole line? Adding gives us about 34 feet. Has this line been divided according to our rule? We can do some simple algebra as a check.

Here is the proportion:

A : B :: B : C

in math shorthand. In words it becomes:

A is to B as B is to C

We can also express this proportion as an equality of fractions:

$$\frac{A}{B} = \frac{B}{C} \qquad where\ C = A + B$$

In words this becomes: A is to B as B is to C, or A divided by B is equal to B divided by C. If we plug in our original numbers we come up with:

$$\frac{13}{21} = \frac{21}{34} \qquad Is\ the\ arithmetic\ correct?$$

The ratio of our two fractions does not work out precisely, because we were working with small whole numbers. Our formula showed that, to a first approximation, the smaller was about 60% of the length of the larger part of the line, and that the larger was about 60% of the length of the whole line. If we wanted to be more precise, the number ought to be 61.8 per cent.

We can arrive at the correct percentage by solving a quadratic equation:

$$\frac{A}{B} = \frac{B}{A + B}$$

If we cross multiply we come up with

A (A + B) = B * B   or
A * A + A * B - B * B = 0

This leads to a quadratic equation that can be solved by the standard formula. We can set A equal to 1, or B equal to 1, but the end result is the same. The smaller part will be .382 and the larger part .618 of the whole line.

The equation goes back to the 1400s and the Italian mathematician Lucas Pacioli, who wrote the earliest printed book on arithmetic and algebra. If you hate quadratic equations, here is a geometrical construction that does the same thing. In a rectangle the size of two squares, draw a diagonal and then one arc from 1 to 2 and another arc from 2 to 3, which gives the exact point.

```
height = 1
length = 2
diag   = sqrt(5) = 2.236
diag less height = 1.236
ratio B to length = .618
```
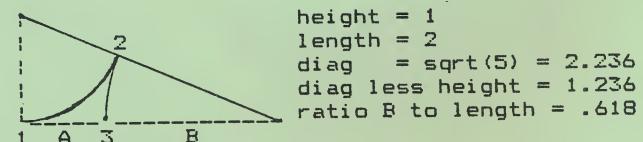
You can find exactly the same ideas in Euclid (although he knew no algebra) in book 2 proposition 11 and book 13 propositions 1 to 5.

Now that we have a mathematically satifying ratio, what can we do with it? We can do what the Greeks did: create a rectangle like this:

Be sure to memorize the shape (an approximate 5 by 8 rectangle). You will find many uses for it. We have taken the smaller side as the height and the larger side as the length, so that the height is to the length as the length is to the sum of the height and the length, a pleasing proportion.

We can also add the length of the two lines that make up the height to the two lines that make up the length. The sum of these lines gives us the perimeter. Another way to describe the rectangle is as follows: the height is to the length as the length is to the semi-perimeter.

Is this mathematics relevant?

This mathematics is not relevant if the resulting rectangle has no esthetic appeal. It merely gives a theoretical basis and a formal justification if the esthetic appeal actually exists in human perception. The Greek used this rectangle and variations of it in the design of the Parthenon. Similar proportions appear in the design of classical Greek vases. This proportion is known today as the Golden Mean. The proportion had no name until the Middle Ages.

This esthetical division of the line that the Greeks found pleasing was known in the Middle Ages as the

Divine Proportion

and it was adopted by architects and painters to give a technical and theoretical foundation for ther efforts.

One of the most interesting characteristics of the divine proportion is that it replicates itself. How? If we create a rectangle in the divine proportion (the rectangle also became known as the Golden Rectangle) we can split it up:

```
+--------+
!      ! !
!      ! !
!      ! !
!_____!_!
```
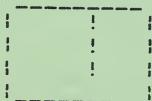
Notice that we have split the Golden Rectangle into two parts so that now we have a square and another Golden Rectangle! We can continue the process as long as we like, drawing smaller and smaller squares and rectangles.

If you scan the paintings going back into the Middle Ages you will find over and over again the use of the Golden Rectangle. The rectangle appears in the overall proportions of the finished painting, or in the subdivision of the scene within the painting itself, or even multiple nested golden rectangles. In other words, this mathematical division of the line has had an acceptance in human experience. So what's new today?

The late French architect Le Corbusier (as Charles Edouard Jeanneret called himself) noted that the golden mean could be replicated along a line like this:

```
+--+----+-------+----------+
 A  B    C        D
```
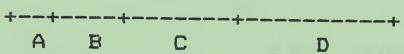
so that A would be to B as B to C as C to D and so on to infinity. The ratio turns out the be the old Fibonacci series which starts out with 1,1,2,3,5,8,13...where each number is the sum of its two predecessors. Very

nice! But what does it mean to architecture?

Le Corbusier wrote up his discoveries in a book he called The Modulor. His idea was to use the lengths of the different lines to create buildings in which all the lengths would be in harmonious proportion. He actually built an apartment building in Marseilles (which stands today) in which he used only eleven different dimensions. He sought to relate the lengths to the proportions of the human body (the floor to the height of the waist, and the waist to the top of the head).

Le Corbusier's building stands today as an architectural monument. There is no decoration -- its esthetic appeal depends entirely on its proportions, all delineated in rough unadorned concrete.

Le Corbusier designed an architect's ruler which, he hoped, would lead other architects to build structures which would produce pleasure from their interior and exterior forms. He was one of the architects of the United Nations building and wanted to put it on stilts, but was overruled by his colleagues.

What can WE do with his rule of proportion? We can use it to partition the X and Y axes in the Cartesian plane at the distances of a Fibonacci series to produce a series of harmoniously related rectangles:

```
+--+----+-------+
!  !    !       !
!  !    !       !
!  !    !       !
!  !    !       !
+--+----+-------+
!  !    !       !
!  !    !       !
+--+----+-------+
!  !    !       !
+--+----+-------+
 A    B     C
```
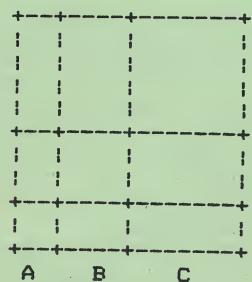
We can continue the pattern upwards and to the right as far as we please. If we cut out the rectangles with a pair of scissors we find that they are all harmoniously related because their lengths and sides are all harmoniously related. We can rearrange them endlessly in a seeming infinity of mosaic patterns. Because the sides are related, we can create mosaics that will completely fill the plane. This pattern seems to have been used in the flagstone floor tiling of New York University's Courant Institute on Mercer Street. Surprise!

Now we can go Le Corbusier one step further. Why not divide Euclidean three-space in the same fashion, by making slices along the three Cartesian coordinates. The result is a series of parallelepipeds (rectangular boxes) that have all their dimensions in harmonious relationships. Now we can make mosaics in THREE dimensions to form buildings or an infinity of human objects.

A picture would help right here but, better still, you can (as I did) take a wooden four-by-four piece of lumber and slice it with a saw into a set of 27 harmoniously related blocks and then spend hours reassembling the blocks into suggestive groupings.

The problem of harmonious form and shape is now a completely solved problem.

Now we can wonder how to apply it. With harmonious form, we no longer need decoration to disguise ugly shapes. Lever House on Park Avenue was one of the early buildings to create architectural beauty through form alone. The Seagram building on Park Avenue was a later addition.

Next time you are in downtown New York, take a look at Chase Manhattan Plaza and note that the same sense of proportion prevails. Note the total absence of any decoration. The building is an architectural marvel for those who have eyes to see. Note that no surface touches any other surface. The outside columns do not touch the walls. The same detailing prevails inside the building, as you will see if you walk through the lobby. But people who have spent twenty years in the building don't know it!

The walls do not touch the ceiling. The walls do not touch the floor. The elevator surfaces and panels do not touch each other. Fine detailing separates every surface from every other surface. Even the washrooms in the executive dining room on the 60th floor show the same fine detailing. There is no decoration. The architectural effects are all achieved through form and...COLOR.

...Which brings us to part two of the puzzle...and the topic for the sequel to this beguiling adventure game....

Modem Meanderings
-or-
"X M - 3 0 What?": Four Months Later

by Mark Knutsen - JACG

As of this writing, I have owned my Atari XM301 direct-connect auto-answer auto-dial 300 baud modem (long description for a little grey box) for five months. Four months ago, I wrote a review of it for these pages. The intervening months have not been eventless, and I decided that it was about time for me to put pen to paper (er, fingers to keyboard,) and describe my adventures.

I'm sure that my experience has been quite similar to that of the average first-time modem owner: I called every Bulletin Board System in sight, keeping our home phone very busy. I managed, however, to avoid calling long-distance numbers, and therein lies my first piece of advice to new modem owners: Avoid making non-local calls to any BBS other than our club's own (A bit of advertising there). The long-distance bill gets away from you very quickly. If you must phone a certain long-distance BBS frequently, there is a service offered by New Jersey Bell called "Selective Calling" that can save you a bundle. For a set rate, you can make up to twenty hours of calls monthly to a certain range of exchanges that would normally be long-distance to you. For instance, I pay approximately $3 monthly to call the JACG BBS (exchange 549) from my home (exchange 241).

In my February review, I said that the XE-Term terminal program "makes telecommunications easy for the first-time user. ... After working with it for a while, however, I find myself wanting some extra features found on more sophisticated terminal programs." At the time of that writing, I was not aware of the existence of 1030 Express! (The exclamation point is part of the program's name.) Version 2.1 of this excellent 263-sector terminal program works with both the Atari 1030 and XM301 modems. It contains all of the features that I expressed a desire for, and many more. Best of all, it is absolutely free. The author, Keith Ledbetter, has released into the public domain a terminal program that obviates the need to pay money for all but the most sophisticated telecommunications needs. I understand that another version of the program, entitled 850 Express!, is available for those who use modems attached to their 850 interfaces.

For starters, 1030 Express! keeps a "call timer" on-screen at all times, which always shows the amount of time you've been online. All DOS II functions except for Run Cartridge, Write DOS Files, Duplicate Disk, Binary Save/Load, Run at Address, and Create MEM.SAV are available. During Xmodem transfers, you can see the actual incoming data, plus a data count and Express!'s best guess as to what type of file it's receiving.

Perhaps the best feature of 1030 Express!, however, is its extensive phone-dialing capabilities. In brief, 1030 Express! can dial a list of up to 18 numbers repeatedly until one answers. Each number has an associated set of three "macros," for password entry ease. If you own an Atari modem, get Express! from a BBS or nag your friends until you find a copy. The price is right.

The February article also noted that free offers from five different information services came with my modem. I took advantage of the CompuServe offer and had spent $17 in time in addition to the $15 of free time before I could tear myself away! For those who can afford it, CompuServe can be informative, educational, and downright addictive. Trying it out won't cost you anything.

Of course, calling local Bulletin Board Systems won't cost you anything either, and there are plenty of BBSs within your local calling area in New Jersey. You won't have to look very far to find a BBS geared to your interests. I've found boards for role-playing games enthusiasts, boards for "chat" enthusiasts, and boards for public domain software enthusiasts.

The "public domain" is large. Very large. There is more stuff out there than I had ever imagined. 1030 Express!, for instance, is free. SpeedScript and SpeedCalc (a word processor and a spreadsheet, both by Compute! magazine) are free. There are free games, free graphics, free utilities -- all available for the cost of a phone call. Why don't you own a modem?

IT'S ABOUT TIME...

THAT YOU WROTE AN ARTICLE FOR THE NEWSLETTER

The Ultimate Ultima
Ultima IV - Quest of the Avatar
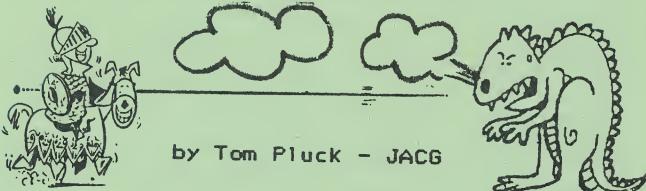
by Tom Pluck - JACG

The dragon in front of you puffs some smoke out of its nose, and poises to launch a flame. But you, striving for virtue, stand your ground and throw your magic axe! The dragon is killed! Oops! You've dropped the joystick. Yep, it's another review from me and another Role-playing adventure from Lord British. Maybe you noticed, I'm reviewing a game in each issue. It's fun, rewarding, and I get to play a lot of games along the way.

Well, let's forget about me and get to Ultima IV. It's 16 times bigger than any previous Ultima, and its graphics have been refined. It's also based on a non-violent quest; to become an Avatar enlightened in the eight virtues (which I can't tell you about, because finding out what they are is part of the quest). You still get a lot of adventuring in, though.

You get two double-sided disks, containing the program, the townes, Britannia, and the Underworld. One character is created for you, but the game finds out what suits you by giving a multiple choice Tarot card test. Up to seven more characters can be picked up along the way. This game is quite addictive and lives up to Lord British's claims. It takes from 100 - 200 hours to finish (which I'm not near yet) but is easy to learn. This makes it a good game for experts and for first-timers like me.

Okay, I told you the good stuff, now for the flaws. Disk swapping causes some trouble. Every time you leave or enter a towne or dungeon, you swap disks. It is pretty easy to accidentally exit a towne, too. The biggest problem is that you can only have one character at a time. No, the seven characters you pick up don't really count. You save your character on the Britannia disk, so you can only use one "leader character" at a time. Overall, though, Ultima IV is a very good game. Little touches such as tornados and funny guards make it a fun, well done (not medium rare) piece of software.

This review submitted by: Pluck Rogers of the 25th century!!!!!!

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GIVE A BIT!!!

Contribute to the Newsletter this month.

Teach Your Toddler To Read

by Donald Forbes -- JACG

```
Those who
        CAN -- do.
Those who
      CAN'T -- teach.
Those who
  CAN'T TEACH -- teach the teachers.
```

If you cannot leave a large estate to your toddlers, you can give them something more precious: make them curious and self-reliant.

How? Very simple. Teach them to read at an early age. The process is easy. What is difficult is the timing. You have about a 36 month window, and if you are not ready in time you may lose the opportunity forever.

You have to capture the interest of the toddler early enough so that you can hold his attention, but not so late that he has already made up his mind not to be interested.

The operation is extremely simple. What is not simple is the enormous amount of patience required of the teacher.

How do you begin? First of all you need a couple of feet of electrical tape (or any dark colored tape) and on the toddler's feeding tray on the high chair you construct a large letter E about six inches in height.

You will then spend the next six months teaching the toddler the letter E by pointing to the letter at feeding time and saying "eee". After four months you may be fortunate: you point to the letter and the toddler replies "eee". You have now completed the first milestone.

Pointing out the letter E is only one half of the early process. You must resolutely spend one half hour each day reading to the child; what you read is up to you. However, there is no better place to start than with The Cat in the Hat by Theodore Geisel (a.k.a. Dr. Seuss) with its 200 word vocabulary.

One day you will be rewarded: the refrigerator you ordered will be delivered in a large carton and the toddler will point to the carton where an E appears and say "eee". The toddler has now learned to read. In other words, the toddler now realizes that letters are not meaningless marks but are symbols that carry some significance. The toddler's eyes have now been opened to the alphabet.

Most adults suffer from a similar blindness when it comes to foreign alphabets. If you have never studied the Cyrillic alphabet that the Russians use then you will never realize that РЕСТОРАН transliterates as RESTORAN where they serve beefsteaks. If you have never studied the Greek alphabet then the word ΕΛΛΕΝΙΚΟΣ will be Greek to you -- just as it is Greek to the Hellenes. ΕΥΡΗΚΑ!

Once the toddler has begun to look at letters, the next step is to point out the vowels: first the A (which is a word), then the I (which is a word), then the O and finally the U.

The best way to teach these vowels is to go to one of the supermarkets such as PATHMARK and in the toy section buy for four dollars a set of large magnetized plastic letters. These make good teaching tools because the toddler can handle the letters and get a tactile appreciation of the shape of each one of the vowels.

Here is where the daily reading helps. The toddler begins to see a connection between the words in the story and the letters that make up the word.

Make sure that you only teach the toddler the upper case letters. Never point out the lower case letters, and never attempt to show that there is a correspondence between the upper case and lower case letters. Any attempt to do so will only sow confusion; what you are trying to do at this early stage is to make everything simple and easy. Avoid anything that could in any way cause confusion.

Here is where the infinite amount of patience is most needed. At this point the whole process is nothing more than a game for the toddler that can be played when the toddler is receptive. If the toddler does not want to play today, there is always tomorrow.

The vowels can be taught one at a time three times a day at feeding time. Once the toddler recognizes the vowels, then the consonants can be taught.

The sequence in which the consonants are taught is most important: the high frequency letters in order are e t a o i n s h r d l u and the consonants should be taught in this general order. The low frequency consonants such as q k w and z should be left for last.

Once the consonants have been taught together with their sounds, then it is time to begin with words.

First come the words with one letter, such as A and I. Then the two-letter words: am an as at be by do go he if in it is me my no of on or so to up us and we.

The important principle behind this whole operation is that about 200 words constitute about half of all written text. Once the toddler recognizes this handful of words, the battle is half won. A vocabulary of 2,000 words is sufficient for the needs of a semi-literate adult. If a toddler can read 200 words by age two, then then everything else is like riding downhill.

The next step is to present the three letter words: 'the' and 'and' are the most important -- they appear everywhere. There are many three letter words, but the trick is to select the ones with high frequency and ignore the rest.

This list has all the ones you are likely to need. You can write a BASIC program to print out all the combinations of letters taken three at a time (26 times 26 times 26 which equals 17,576) but you can immediately eliminate the ones with three consonants so you really only have 26 times 26 times 6 (five vowels plus the letter Y) so you are now down to 4056 possibilities and most of them make no sense.

Here is a basic program that will print all the three-character words. You can run it piecemeal and select vowels with these six codes: a is 97, e 101, i 105, o 111, u 117 and y 121, by using, say, FOR J=111 TO 111.

```
10 FOR J=97 TO 122
20 FOR K=97 TO 122
30 FOR L=97 TO 122
40 PRINT CHR$(J);CHR$(K);
   CHR$(L);" "
50 NEXT L:NEXT K:NEXT J
```

Here are the three-letter words that matter: ago all any are ate but dad eat end few fit get got had him his how lot may men new not now one out our put ran run say saw sat see she too two use was way why who yes you. The four-letter words you need will include: come have like more must said some this that them they what when.

The easiest way to present the words is to buy a spiral-bound notebook, tie a shoelace through the spiral wire to hang it on the wall, then write on each page in large uppercase letters each of the one-letter words in alphabetical sequence, then the two-letter words, and then the three-letter and four-letter words. There are a few longer words that you will need because they are so frequent, such as "which" and "because," but they are the few exceptions.

Once the toddler recognizes the 200 high frequency words, you are ready to withdraw back into the woodwork. You still read to the toddler each day, but now you begin to introduce new reading materials.

The most effective reading material is, first, the Sunday comics and then the comic books of the Donald Duck type. The great merit of these sources are that they are all written in upper case and require no great attention span, and are disposable. The toddler never becomes bored.

The comic books are an enormously valuable resource: the toddler finds them endlessly interesting and they provide a great motivation for the toddler to exercise his reading skills. If you feel that comic books are not great literature, don't worry. They will serve their purpose for a time. The toddler will read the comic books avidly for a couple of years. Then one day he will lose interest, and you can give them all away to a neighbor with older children.

You have to continue you daily readings for the child. Here is your chance to present "literature," providing of course that you do not bore the child to the point where he loses interest in what you are trying to offer.

Once the child begins to recognize words, you take advantage of every reasonable opportunity to let the child exercise its new skill. In the grocery store, in particular, it is a simple matter to point to cans and cartons that display HAM or PEAS or PIE or OATS in large letters that are easy to see. Reading license plates is another exercise for the road.

One youngster, waiting to begin his first day in kindergarten, was told by a young girl his age that the sign said "Keep off the grass" and he retorted: "No, it says: Parents will please not park in the school driveway."

The ability to read at an early age gives the toddler what will serve him the rest of his life: curiosity and self-reliance. One side benefit is that he will have little trouble with spelling: he will accept the grotesque orthography of the English language as a matter of course -- though and through and cough will never faze him.

One effect of his reading skill will be to place him in the ninetyninth percentile in the yearly tests in the elementary grades. As for later life, it is difficult to tell. He may end up as a National Merit Scholar and win a four-year paid scholarship to Stanford, or end up marrying a military officer and traveling around the world, or turn into a budding writer, or become a chess freak as well as a National Merit semifinalist and a prospective actuary. Who can predict the future?

Help My Scrambled Files!

125 Runyon Avenue
Piscataway, NJ 08854
May 22, 1986

Dear Members:

I have several disks that I use with ATARIWRITER PLUS where I cannot read the files. I get an error 164. I also have a couple of disks that I can read, but not write to; i.e., save a file. I get error 168. The frustrating thing is that not all files on all disks are affected. In looking at the disk directory, the sector counter registers 999+ FREE SECTORS when I have 20 or more files on the disk. Going back to regular ATARIWRITER, the disk directory reads :56 FREE SECTORS.

Can anybody help with a data recovery routine or explain what's happening?

Is there an error(s) in the KEYPAD HANDLER program on page 8 of the February 1986 issue of the newsletter? I have not been able to get it to work.

Sincerely,

Barry R. Weissman
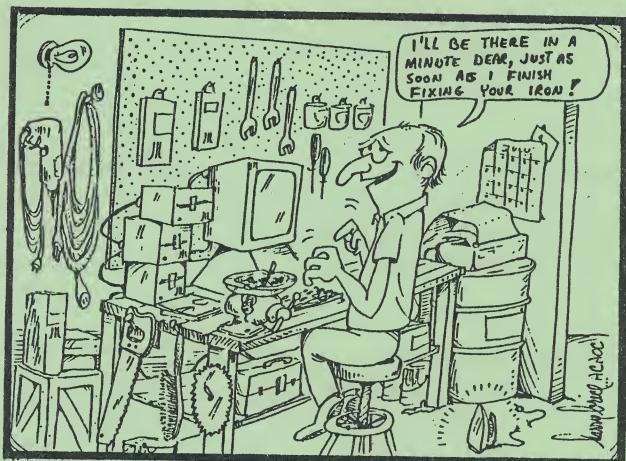
H. Brice in ORNJUCE
(A.C.A.O.C.)

CTI Printer Tip

from Barry Weissman - JACG

When printing out from SYNGRAPH and using the CTI (BMC) printer, select the Epson printer with Switch block 2, #3 set to ON. It works well.

FIRST CLASS MAIL

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June 1986

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